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Surveying Assessment in Experiential Learning: A Single Campus Study

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Abstract

The purpose of this study was to determine the methods of experiential assessment in use at a Canadian university and the extent to which they are used. Exploring experiential assessment will allow identification of commonly used methods and facilitate the development of best practices of assessment in the context of experiential learning (EL) at an institutional level. The origins of EL are found in the work of Dewey (1938), later modified by Kolb and Fry (1975). Experiential methods include: experiential education, service learning problem-based learning and others such as action learning, enquiry-based learning, and case studies. Faculty currently involved in EL at the participating university were invited to complete an online survey about their teaching and assessment methods. This paper will share the results and analysis of the EL inventory survey.

L'objectif de cette étude était de déterminer quelles méthodes d'évaluation expérientielle sont employées dans les universités canadiennes et dans quelle mesure elles sont employées. Le fait d'explorer l'évaluation expérientielle permettra d'identifier quelles sont les méthodes employées couramment et facilitera le développement des meilleures pratiques d'évaluation dans le contexte de l'apprentissage expérientiel au niveau institutionnel. Les origines de l'apprentissage expérientiel se trouvent dans les travaux de Dewey (1938), modifiés plus tard par Kolb et Fry (1975). Les méthodes expérientielles comprennent : l'éducation expérientielle, l'apprentissage par le service, l'apprentissage par problèmes, ainsi que quelques autres tel que l'apprentissage par action, l'apprentissage par l'enquête et les études de cas. Les professeurs qui pratiquent actuellement l'apprentissage expérientiel dans les universités participantes ont été invités à remplir un questionnaire en ligne portant sur leur enseignement et leurs méthodes d'évaluation. Cet article partage les résultats et les analyses du sondage sur l'apprentissage expérientiel.

Keywords

experiential learning, experiential assessment, experiential teaching, traditional assessment, faculty development, teaching methodology

Cover Page Footnote

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Universities across Canada are looking for ways to make learning more meaningful and impactful for students to increase student engagement in their education and better prepare them for the workforce. One of the areas identified to address this important goal is Experiential Learning (EL). Preparing students for the workforce by engaging them in more meaningful learning experiences is also the goal of our institution, a Canadian university. To this end, the purpose of this study was to determine the forms of EL assessment in use at our institution, and to gauge the extent to which these methods have infiltrated teaching. It is our belief that informing our practice will lead to change. Identification of commonly used methods will facilitate the development of institutional efforts to scale up experiential assessment in keeping with EL. Also, this knowledge will provide a base upon which to study the impact of the choice of assessment method (experiential or traditional) on student learning in courses that use EL methods. This study establishes a baseline for the range of assessment methods used by instructors teaching courses with a component of EL. It also identifies (and normalizes) alternative assessment practices in a single campus environment.

EL is a term that refers to learning by doing (Kolb & Fry, 1975), and is further defined as authentic, student centered, hands-on, and situated in relevant learning contexts (Kolb & Kolb, 2005). Due to its effectiveness for learner success, EL is becoming an option for those teaching at the post-secondary level (Breunig, 2005; King, 1993; Nnodim, 1997). The main driver behind these approaches to learning is the need to have students working outside of “traditional” classroom settings and procedures.

EL may include a variety of different instructional methodologies such as field work, internship, presentation, experiential education, and problem-based learning, to name a few. Although there is anecdotal and research evidence that illustrates many of these methodologies are being applied, EL is still not widespread. Even more importantly, the assessment and evaluation tied to EL is less well-defined. To better understand EL methodologies and assessment at our institution, an inventory of existing options needed to be determined. In an attempt to be comprehensive and inform our investigation of these methods, the review of the literature began examining assessment methods in general. This initial review was then refined to create an inventory of both the application and assessment of EL with which to inform a survey of faculty at a Canadian university to determine the EL methodologies that were being used and how the students were being assessed. This paper shares the process and the outcomes of the survey.

Review of the Relevant Literature

Experiential Learning

The origins of EL are found in the work of Dewey (1938) who identified the role of experience and reflection in learning. This initial description of EL was refined by Kolb and Fry (1975) into a cyclic model of four stages: concrete experience, observation and reflection, concept formation, and re-evaluation. Since the introduction of the Kolb and Fry model, a range of EL teaching concepts and methods have been developed to facilitate this form of learning. Examples include: experiential education, i.e., learning through direct experience (Bruenig, 2005), students working with community partners or service learning (Grossman, Patel, & Drinkwater, 2010), working cooperatively within groups to find solutions to real problems or problem-based learning (Bethell & Morgan, 2011), and others such as action learning (discussion, role playing, debates, writing and reflecting), inquiry based learning, and case

studies (Quinn & Shurville, 2009). These methods include EL in forms as simple as a group discussion or using the outdoors as a classroom. EL employs strategies such as teacher modeling (Haston, 2007), think-aloud (Neilsen, 2002), and reciprocal-peer teaching (Meister, 2012; Doolittle, Hicks, Triplett, Nichols, & Young, 2006; Krych, March, Bryan, Peake, Pawlina, & Carmichael, 2005). EL is foremost a philosophy based on the work of Dewey (1938) and, by subscribing to that theory, EL methods have been repeatedly recognized as superior to traditional teaching methods in the enhancement of student performance and the promotion of critical learning (Breunig, 2005; King, 1993; Nnodim, 1997).

Literature on EL presents many studies that assess the impact of applying experiential theory and teaching methods on student understanding and retention. Kolb and Kolb (2005) view EL as a process where the transformation of experience results in the creation of new knowledge. Students take an active learning role (Dennehy, Sims, & Collins, 1998) and communication is two-way between instructor and student, and between students (Van Eynde & Spencer, 1988). By contrast, in a lecture-based course concepts and skills are described, thought involves one-way communication between instructor and student, and the students take a passive learning role. It is believed that, due to these differences, EL accommodates a range of learning styles (Rhodes & Roessner, 2009), whereas lecture based learning does not. EL has been shown to promote deep learning (Bethell & Morgan, 2011; Sternberg & Zhang, 2001). Deep learning involves relating new ideas to previous knowledge and relating concepts to everyday life. A surface approach is where information is transferred to students with the objective of learning with a focus on individual elements instead of integration (Sternberg & Zhang, 2001). EL can accommodate a range of learning styles (Breunig, 2005), whereas traditional teaching models promote primarily one means of education: surface learning (Anderson, 1998).

Assessment

While many studies have demonstrated the positive impact of EL methods on student learning outcomes, the choice of evaluation method used to assess students in courses that use EL are much less studied. A primary purpose of assessment is to validate the knowledge and skill level of a student for the benefit of the intended profession and society (Quinn & Shurville, 2009). Assessment frames student learning and can, in some cases, have more impact on the learning process than teaching (Gibbs, 2006). Traditional testing has the potential to be a distorted measure of learning because of the nature of the test itself (Gibbs, 2006). Our review of the literature on assessment identified a range of commonly used methods that were either experiential or traditional as defined by the authors (see Table 1). By comparison, the range of traditional assessment methods commonly used is narrow, whereas the range of experiential assessment methods are broad.

Table 1

Assessment Methods and their Classification as Traditional or Experiential¹ According to the Literature

Assessment method	Type	Reference(s)
Paper/essay	Traditional	Struyven, Dochy, & Janssens (2008a); Struyven, Dochy, & Janssens (2005); van de Watering, Gijbels, Dochy, & van der Rijt, (2008) describe papers/projects as alternative assessment methods (contrasted with oral and written exams)
Written exam	Traditional	Struyven, Dochy, & Janssens (2008a); Davis (1988); van de Watering, Gijbels, Dochy, & van der Rijt, (2008)
Multiple-choice exam	Traditional	Struyven, Dochy, & Janssens (2008a); Struyven, Dochy, & Janssens (2005); Struyven, Dochy, Janssens, & Gielen (2008a); Struyven, Dochy, Janssens, & Gielen (2008b)
Practical exam/performance test	Experiential	Struyven, Dochy, & Janssens (2008a); Davis (1988)
Oral exam	Traditional or experiential	Struyven, Dochy, & Janssens (2008a) describe oral exams taken as a group as an unconventional or alternative assessment method, and consider individual oral closed book exams as a traditional assessment method; van de Watering (2008) contrast both individual and group oral exams with other alternative assessment methods
Portfolio assessment	Experiential	Struyven, Dochy, & Janssens (2008a); Struyven, Dochy, & Janssens (2005); Qualters (2010); Struyven, Dochy, Janssens, & Gielen (2008a); Struyven, Dochy, Janssens, & Gielen (2008b); van de Watering, Gijbels, Dochy, & van der Rijt, (2008)
Take-home exam	Traditional or experiential	Struyven, Dochy, & Janssens (2008a); van de Watering, Gijbels, Dochy, & van der Rijt, (2008) contrast written take home exams with other alternative assessment methods
Open-book exam	Traditional or experiential	Struyven, Dochy, & Janssens (2008a) classify individual written open-book exams as traditional; Williams & Wong (2009) describe open-book, open web (OBOW) exams as an alternative to closed book, invigilated alternatives, with OBOW exams being more aligned with constructivist learning theory
Case-based exam	Experiential	Struyven, Dochy, & Janssens (2008a); Struyven, Dochy, & Janssens (2005); Struyven, Dochy, Janssens, & Gielen (2008a); Struyven, Dochy, Janssens, & Gielen (2008b)

Table 1 (continued)

Assessment method	Type	Reference(s)
Journal assessment	Experiential	Breunig (2005); O'Toole (2007)
Presentation	Experiential	Breunig (2005); Struyven, Dochy, & Janssens (2005)
Simulation/role-playing	Experiential	~ Struyven, Dochy, & Janssens (2008a); Struyven, Dochy, & Janssens (2005); Davis (1988)
Debriefing interview	Experiential	Davis (1988)
Product assessment	Experiential	Davis (1988)
Concept mapping	Experiential	Ruiz-Primo, Shavelson, Li, & Schultz (2001)
Project report	Experiential	van de Watering, Gijbels, Dochy, & van der Rijt, (2008)
Narrative assessment	Experiential	
Other	Experiential	Critical reflection paper (Breunig, 2005); Wikis and forums (Puente, 2007); Computerized tests (van de Watering, Gijbels, Dochy, & van der Rijt, 2008)
Assessment Style	Type	Reference(s)
Individual task	Traditional	Struyven, Dochy, & Janssens (2008a)
Group task	Experiential	Struyven, Dochy, & Janssens (2008a)
Evaluation Style	Type	Reference(s)
Instructor assessment	Traditional	Stefani (1992)
Self-assessment	Experiential	Struyven, Dochy, & Janssens (2008a); Breunig (2005); Struyven, Dochy, & Janssens (2005); Davis (1988); Stefani (1992)
Peer assessment	Experiential	Struyven, Dochy, & Janssens (2008a); Breunig (2005); Struyven, Dochy, & Janssens (2005); Stefani (1992); Struyven, Dochy, Janssens, & Gielen (2008a); Struyven, Dochy, Janssens, & Gielen (2008b)
Collaborative assessment	Experiential	Struyven, Dochy, & Janssens (2008a); Stefani (1992); O'Toole (2007)

¹ Includes assessment methods described as “experiential,” “alternative,” or “authentic,” or assessment methods contrasted with “traditional” methods.

Anderson (1998) gives us further proof for the distinction between traditional and alternative assessment, comparing philosophical beliefs and theoretical assumptions of traditional versus alternative assessment (see Figure 1). The comparison illustrates the theoretical interpretation of nine underlying philosophical tenets of the assessment of learning. For example, traditional assessment assumes knowledge can only be interpreted as a single truth whereas alternative assessment allows for multiple interpretations of knowledge. Traditional assessment is passive rather than active. Power and control of learning is hierarchical in traditional assessment, but shared in alternative assessment. Although identified by Anderson as alternative, those methods would also fit the criteria for experiential assessment.

Traditional Assessment		Alternative Assessment
Universal Assessment	Knowledge	Multiple meanings
Passive process	Learning	Active process
Separate product from process	Process	Emphasizes product and process
Discrete isolated bits of information	Focus	Focus on inquiry
To document learning	Purpose	To facilitate learning
Cognitive abilities as separate from affective and conative abilities	Abilities	Connects between cognitive, affective and conative abilities
Views assessment as objective, value-free and neutral	Assessment	Views assessment as subjective and value-laden
Hierarchical model	Power and Control	Shared model
Learning as an individual process	Individual versus Collaborative processes	Learning as a collaborative process

Figure 1. Comparison of philosophical beliefs and theoretical assumptions of traditional and alternative assessment (adapted from Anderson, 1998).

Experiential Assessment

Most instructors will teach and assess based on their own experience (Quinn & Shurville, 2009) and, as a result, tend to use traditional testing methods in EL courses. For example, although several studies use a range of assessment methods in EL courses such as journals, reports, group projects, presentations, self-evaluation, etc., these studies also still rely on traditional assessment formats such as tests and quizzes (Breunig, 2005; Garvin & Ramsier, 2003; Rhodes & Roessner, 2009). The persistence of the use of traditional assessment methods in EL courses may be due to instructor perception of traditional methods, such as written assessment, as the most effective methods for evaluating student learning (Davis 1988). However, in a comparison of perceptions regarding what was taught, practiced, and assessed in classroom EL course, Haigh & Kilmartin (1999) found that students perceived differences between what was being taught and practiced, and how they were being assessed. This suggests that alignment of assessment methods with teaching strategies in EL courses may be inhibited by a lack of understanding of EL methods. Currently, there is little discussion in the literature on the use of traditional type testing methods in EL courses and the impact on student learning outcomes. As well, there is little discussion on the appropriate types of assessment methods for EL courses and on matching the assessment method with the form of EL.

Breunig (2005), who used mixed methods approaches in experiential education to address multiple learning styles, also indicated that a multiple methods approach to assessment was also needed. She proposed evaluating student performance using methods such as journals and presentation in addition to traditional assessment methods. Stefani (1992) demonstrated that peer-assessment and self-assessment produced similar results when compared to traditional assessment methods. Puente (2007) evaluated student performance in group activities using rubrics to assess student contributions to wikis. He found several advantages to interacting with and providing feedback to students using wikis; however, Puente made note that assessment tended to focus on quantity rather than quality. Understanding why, what, and how to assess is an important step in developing an effective assessment tool according to Qualters (2010). He indicated that the key to assessment is the instructor deciding on the “burning question(s)” that need to be answered and knowing this will guide development of meaningful assessment methods. The author also recommended the use of mixed methods of assessment matched with EL. He presented a model for assessment that evaluated student skills before, during and after the learning experience (Input, Experience, Output model: I-E-O). Student surveys were used to evaluate input and output, with reflective journals and observation used to assess students during the experience. It is important to develop and use methods of assessment that are compatible with the concept of deep learning and varied learning styles. McGuire & Banerjee (2008) see the flexibility and variety of EL as positive for learners and this flexibility can be transferred to evaluation.

Student perception of assessment method can impact student performance. Struyven, Dochy, & Janssens (2005), in a study of assessment methods in student-activated learning courses, found that students expecting to be evaluated using essay-type assessment tools performed better on multiple choice exams than students expecting to be evaluated using the multiple choice exams. Their conclusion was that the perception of essay-type methods promoted deeper learning and the expectation of multiple choice methods promoted surface learning in students in spite of the fact that both groups had a preference for multiple choice exams. Ironically, students also felt that multiple choice exams were an inappropriate assessment method (Struyven, Dochy, & Janssens, 2005). Struyven, Dochy, Janssens, Schelfhou, & Gielen (2006) compared a set of EL assessment methods to a traditional, multiple choice evaluation of student performance. Student performance was highest when evaluated using multiple choice regardless of whether the teaching was lecture based or experiential. It is possible that the conditions of the examination – multiple choice being closed book compared to open book for the experiential methods – had an impact on the results (Struyven, Dochy, Janssens, Schelfhou, & Gielen, 2006).

Interestingly, Struyven, Dochy, & Janssens (2008a) contradicted their previous work (Struyven, Dochy, & Janssens, 2005) by finding that student preferences were in-line with students’ perception of the appropriateness of the assessment method. Consistent with Struyven, Dochy, & Janssens (2008a), students perceived multiple choice exams as less appropriate than more experiential methods such as portfolio assignment or case-based assessment; however, students perceived student-activated learning to be lower quality instruction. It was felt that these perceptions were possibly due to a mismatch between student learning habits and the student-activated learning environment. This unfamiliarity may be the reason for the conclusions drawn by Struyven, Dochy, Janssens, & Gielen (2008a), which found that students’ learning was not deepened by the use of student-activated learning and assessment. The authors felt that the methods promoted surface learning instead of deep learning because students perceived that

learning in this environment required more work for less feedback and structure. That familiar, essay-type assessment promoted deeper learning in Struyven, Dochy, & Janssens (2005), and that unfamiliar experiential assessment methods such as portfolio assignment, as used in Struyven, Dochy, Janssens & Gielen (2008a) did not indicate that it is important to choose an experiential assessment method that students may have been exposed to before or possibly matched to the learning experience itself. Overall, it appears important that students prefer the EL experience as this leads to greater perceived learning and higher scores when assessed (Struyven, Dochy, & Janssens, 2008b).

Although several studies use a range of assessment methods in EL courses such as journals, reports, group projects, presentations, self-evaluation, etc., these studies also still rely on traditional assessment formats such as tests and quizzes (Breunig, 2005; Garvin & Ramsier, 2003; Rhodes & Roessner, 2009). Currently, there is little discussion in the literature on the use of traditional type testing methods in EL courses and the impact on student learning outcomes. As well, there is little discussion on the appropriate types of assessment methods for EL courses and on matching the assessment method with the form of EL.

Quinn & Shurville (2009) called for academic institutions to “scale up assessment of experiential learning to the institutional level” (p. 330) in the same way that this was done for EL itself. They are in part responding to the idea of educating the public for a knowledge-based economy and the need for a pedagogy to transfer the required skills, knowledge, and creativity (Hartley, 2003). Thus, teaching for a knowledge-based economy requires a move away from teaching-centered (traditional) methods to methods that encourage self-reliance and creativity (Hartley, 2003) or methods that promote deep learning and use higher-level cognitive strategies, as do EL methods. In the same way that early adopters initiated institutional level EL in educational institutions, experiential assessment methods are at a stage where early adopters have introduced a variety of methods into the pedagogy of their discipline, and have positioned their institutions to “scale up” assessment to the institutional level.

Based on our review of the literature, there is clear differentiation between traditional and experiential methods of assessment. Despite the need to match teaching and assessment methods, methods of assessment in EL courses often remain traditional. We found a paucity of information regarding the methods of assessment currently being used in EL courses.

Research Context

Our host institution set a target to expand EL for all students by 20% (University Planning Document, 2012), a commitment expressed in its latest integrated plan in response to its students expressing a desire for more EL activities and courses that address their diverse learning styles. The integrated plan for our host institution was a document articulating several institutional level themes including a commitment to Innovation in Academic Programs and Services. The target to expand EL by 20% was an institutional initiative under this theme. Notably, this target is not atypical of other universities across Canada. Selected examples include Ryerson University’s institutional commitment to EL complete with faculty supports and frameworks, University of Waterloo’s co-operative learning programs, which are a large part of their student experience, and Dalhousie University’s course offerings that are specifically about the development of understanding in EL for learners. Along with other Canadian institutions, our host institution has made a concerted effort to promote and expand its use of EL and offers a

number of programs that have EL opportunities; as such, it is an appropriate context to study EL as it relates to teaching and learning in Canadian higher education.

The university in this study offers a number of programs that have EL opportunities. Early adoption by faculty and effective communication and promotion of EL methods has resulted in a range of EL opportunities for students across campus. The participating university is well positioned to develop an institutional level program for delivery of EL. Less developed is the state of assessment in EL courses. It is assumed that early adopters have also employed a range of assessment methods; however, it is not known to what extent such methods are used in terms of the types used, the contribution to overall assessment, and the number of instructors that use these methods. As well, to what extent traditional assessment methods are used in courses that are experiential is also unknown.

We believe this inventory will facilitate the development of institutional efforts to scale up experiential assessment in keeping with EL. Also, this knowledge will provide a base for future study of experiential assessment methods in courses that use EL methods. The specific objectives of this research were to conduct a campus-wide survey of assessment methods used in EL courses at our university and to inform the broader educational community of assessment method options for use in EL courses.

Method

An initial review of the literature identified the range of possible EL methods and possible EL assessment methods. To determine what was currently taking place on campus in terms of EL and assessment, the researchers developed and utilized an online survey instrument. Although many teaching and assessment methods were identified, no one publication presented a comprehensive instrument to conduct an inventory. However, the survey developed by Davis (1988) to study the development of assessment in experiential education [EL] provided examples of relevant survey questions and served as a guide to the development of the questions for our own survey.

The specific methodologies identified in the literature review were used to guide development of the online survey using the online survey creation software Fluid Surveys v.4.0 (Fluidsurveys, 2013). The survey was designed and piloted with university faculty and instructional designers familiar with EL. After the expert review, minor changes were made to the instrument to make the questions clearer. The final version of the instrument (see the Appendix) consisted of 11 to 18 questions asking participants to self-assess the level of EL in their course. The number of questions in the set depended on where the respondent's course was situated on a range from entirely experiential to entirely traditional in terms of teaching method. Participants, in addition to indicating their degree of experiential activity, also indicated specific teaching and assessment methodologies and, where applicable, ranked their choices. Survey questions were designed so that respondents were free to choose any or all responses that applied. The survey was part of a larger study that was approved on ethical grounds by the research ethics board at the researchers' university.

Staff at the participating university's learning center who are dedicated the promotion of innovation in teaching provided a comprehensive list of instructors who had previously self-identified as using EL teaching and assessment methods. The list of 463 instructors was used to distribute the online survey. Participants were invited over a three-week period to complete the survey.

A variety of analyses were conducted after the data was collected. Descriptive statistics were used to identify significant trends in teaching methods and assessment. Additionally, tests for multiple marginal independence (MMI) were used to examine relationships between course types – a single-response categorical variable (SRCV) – and assessment methods used – a multiple-response categorical variable (MRCV). Tests of MMI are equivalent to the Pearson chi-square test of independence, but are used in cases where respondents are asked to “pick all” responses that apply rather than “pick any”; as such they test whether the response distributions of a question differ among different groups of respondents (Bilder, Loughin, & Nettleton, 2000). Tests of simultaneous pairwise marginal independence (SPMI) were conducted to probe the associations between various MRCVs. Both MMI and SPMI use a modified Pearson chi-square statistic to adjust for within-subject dependence among responses using non-parametric bootstrap procedures (Bilder & Loughin, 2004; Bilder, Loughin, & Nettleton, 2000). Post hoc analyses to the MMI and SPMI tests consisted of conducting Pearson’s chi-square tests and subsequent examinations of the contingency tables. All analyses were conducted using R v.3.0.2. (R Core Team, 2013). MMI and SPMI tests were performed using package “MRCV” (Kozoil & Bilder, 2013). Chi-square tests were computed using package “gmodels” (Warnes, 2013) as part of the statistical computing program R (R Core Team, 2013). All analyses were tested for significance at the $p < 0.05$ level.

Results

Of the 463 survey invitations 100 responses were received. Of these responses, 56 surveys were fully completed, which resulted in a response rate of 12%.

After a review of the survey data generated by the respondents, a number of important outcomes were identified. Initially to sort the participants into levels of involvement with EL, participants were given four categories to choose from (Figure 2). They were asked if their course or courses were: entirely experiential, primarily experiential, mostly traditional, or entirely traditional. Participants were asked to base their assessment on the nature of a single course, or if they taught more than one EL course to give answers best suited to all of their courses in general. The last category (entirely traditional) was added in case any individuals were misidentified as being engaged in experiential education. It is clear based on the results that most of those who participated the survey were engaged in EL to a high degree with 75% of respondents placing themselves in the first two categories.

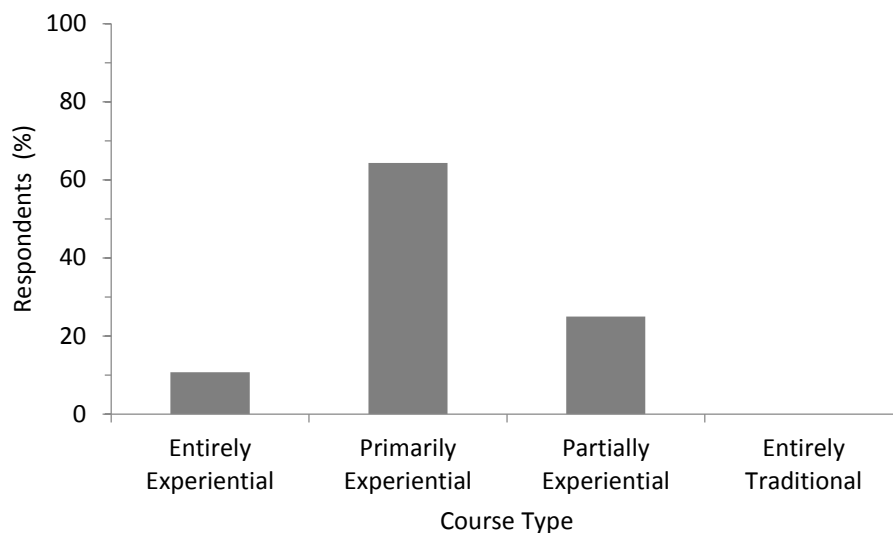


Figure 2. Percentage of respondents ($n = 56$) in each course type indicating the level of involvement with EL methods used by survey participants.

The above classification was then used to examine each of the participant's work based on their self-assessed intensity of EL.

Entirely Experiential

For those who identified their courses as entirely experiential ($n = 6$), a majority (83%) described their course(s) as experiential education where students learn from direct experience. The next highest descriptor was active learning (67%) where students engaged in learning material using a diverse set of methodologies and strategies. Field-based learning (50%) rounded out the top three where students were working away from the institution and were in direct contact with the content they were studying.

Within the entirely experiential group (see Figure 3), presentation was identified as the most common form of assessment (100%). Paper/essay was second (67%) and journal assessment (50%) and debriefing interview (50%) were the third most used assessment forms. A majority of the assessment methods were conducted on individuals as opposed to groups of students. Only presentation had a higher rating when it came to group work. No instructors reported using formal written examinations.

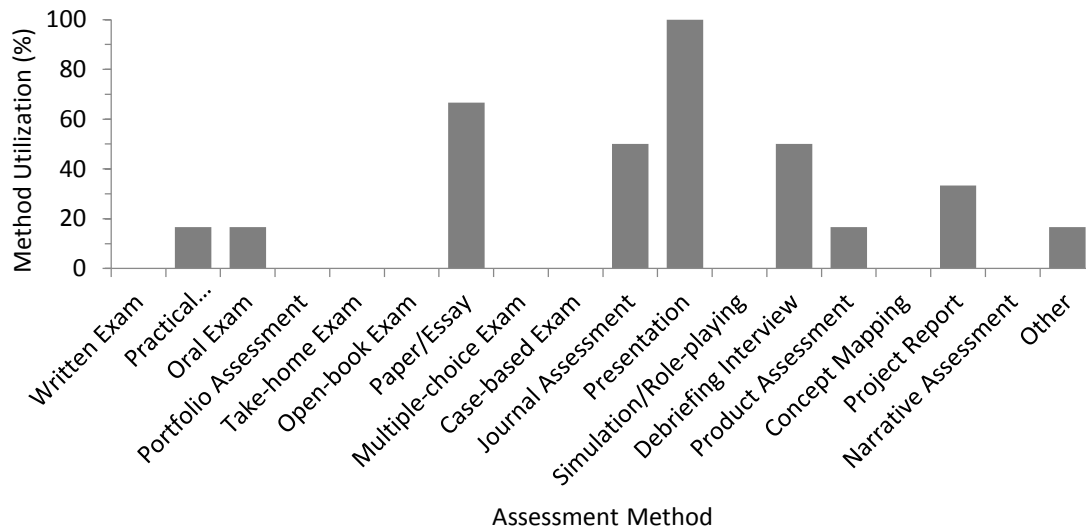


Figure 3. Percent of survey participants teaching entirely experiential courses (n = 6) utilizing various assessment methods in EL courses.

When asked how they evaluated the assessments, a majority of respondents (67%) said that expert opinion was what they used (see Figure 4).

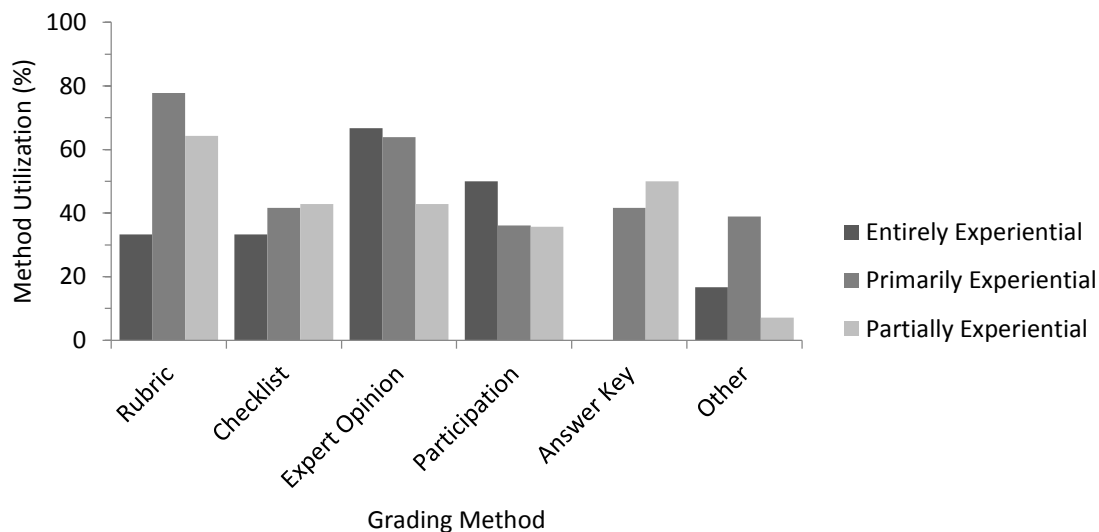


Figure 4. Percent utilization of grading method across course types.

Primarily Experiential

For those who identified their courses as primarily experiential (n = 36), respondents reported a combination of 13 different instructional approaches. The majority of respondents (94%) reported that they used direct experience as an experiential component (experiential education). Others that were mentioned often included field projects (75%), active learning (72%), presentations (67%), problem-based learning (61%), and group projects (61%).

The reported assessment methods for the above mentioned strategies were again very diverse with 18 different forms of assessment being utilized (see Figure 5). The top three assessment methods were presentation (67%), project report (61%), and paper/essay (50%).

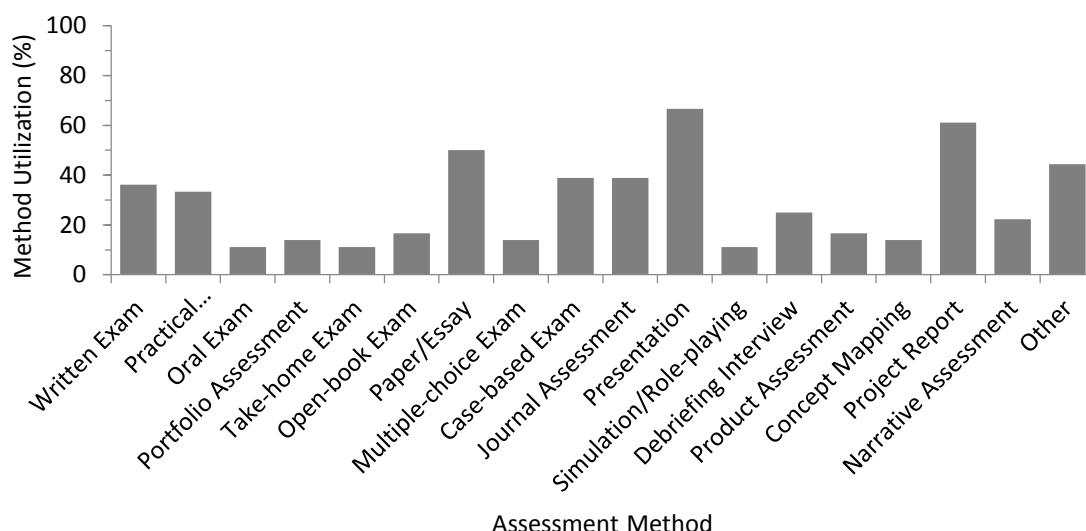


Figure 5. Percent of survey participants teaching primarily experiential courses (n = 36) utilizing various assessment methods in EL courses or course components.

As was the case with entirely experiential courses, most of the assessment methods were completed individually. Only presentations and role-playing had higher levels of group assessment when compared with individual assessment. Rubrics (78%), expert opinion (64%), and checklists (42%) were the most common means of assessing the experiential evaluations (see Figure 4).

Partially Experiential

For those who identified their courses as partially experiential (n = 14), respondents reported to use a wide range of instructional approaches. The most common instructional approach was experiential education (100%), followed by active learning (64%) and field projects (43%) as well as group projects (43%). Many assessment methods were used encompassing a variety of categories (see Figure 6). Paper/essay was the most commonly used instructional approach (79%), followed by written exams (71%), project reports (43%), presentations (43%), and other methods (43%).

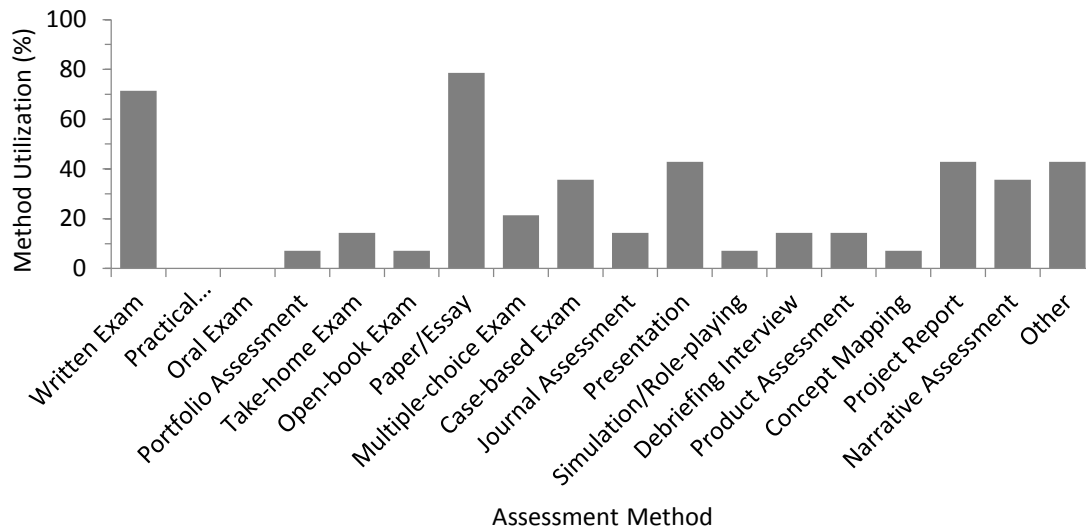


Figure 6. Percent of survey participants teaching partially experiential courses ($n = 14$) utilizing various assessment methods in EL courses or course components.

A majority of the assessments were carried out individually. The most common evaluation of the EL methods by this group of instructors was by rubric (64%), answer keys (50%), checklist (43%), and expert opinion (43%) (see Figure 3).

Choice of Assessment Methods

When respondents reported that they test experiential and traditional course components separately, written examination (65%) and paper/essay (48%) were most frequently used to assess non-experimental course component(s) ($n = 23$). Other traditional assessment methods such as multiple choice examinations, and experiential methods such as project reports and presentations, were also on the list. When it came to grading these evaluations, answer keys (52%), rubrics (48%), and expert opinion (35%) were the most popular. In contrast, when questioned exclusively about methods used to assess the experiential course component(s) ($n = 29$), presentations (52%), paper/essay (45%), and project reports (41%) were most commonly used. Grading was most often performed using rubrics (66%), expert opinion (48%), checklists (38%), and participation (34%).

Based on a pre-determined list, survey participants indicated a variety of assessment methods used in courses that are entirely, primarily, or partially experiential (see Figure 3). Of the experiential assessment methods included in that list, journal assessment, case-based exam, presentation, and project report were most common. In terms of traditional assessment methods, paper/essay was the most commonly used followed by written exam. Multiple choice exam was the least commonly used traditional assessment method and simulation/role-play was the least common experiential method. The number of methods indicated in the “Other” category shows that the range of methods is broader yet than explored by this study. Participants were asked to rank their choice of assessment method based on its contribution to the overall assessment of the student. The structure of the rankings did not allow for cross comparisons, so the use of those results was limited. However, all three experiential groups still identified through ranking that the paper/essay was part of the determination of the student grade.

When asked what factors influenced their choice of assessment methods, participants were free to choose as many factors as they deemed relevant from a list provided. The response indicated that they were most often guided by what was the common practice in their area of teaching (see Figure 7). Consistency, time, and objectivity in assessment were also important factors.

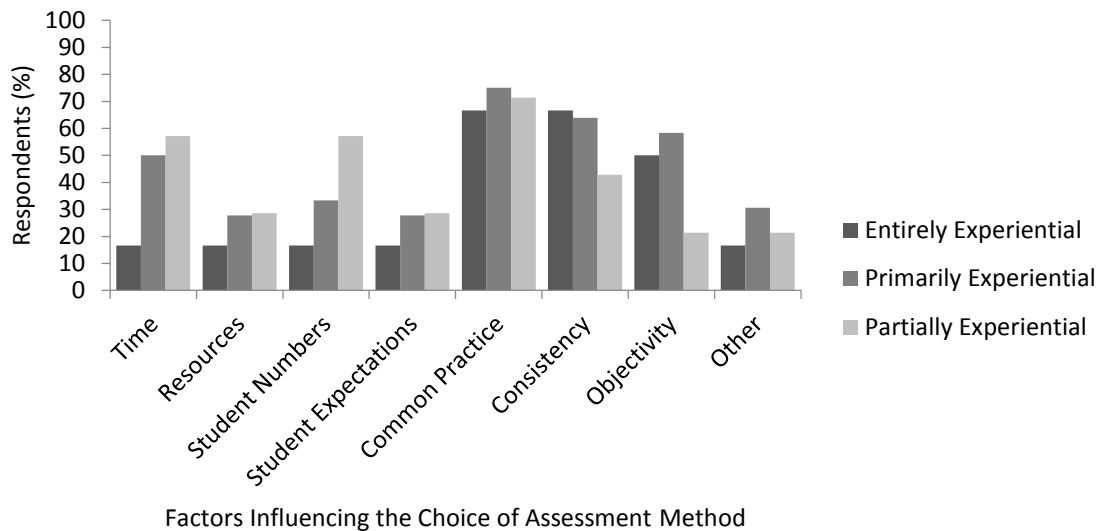


Figure 7: Percent of all survey participants in each course type indicating the factors influencing their choice of assessment method in EL courses or course components.

A comparison of assessment methods reported across course types (see Figure 8) shows a trend in the decline in use of presentation, debriefing interview, and journal assessment as the level of EL declines across the course types. The opposite trend is seen in the use of written exam and multiple choice exam, which were absent in the entirely experiential course type.

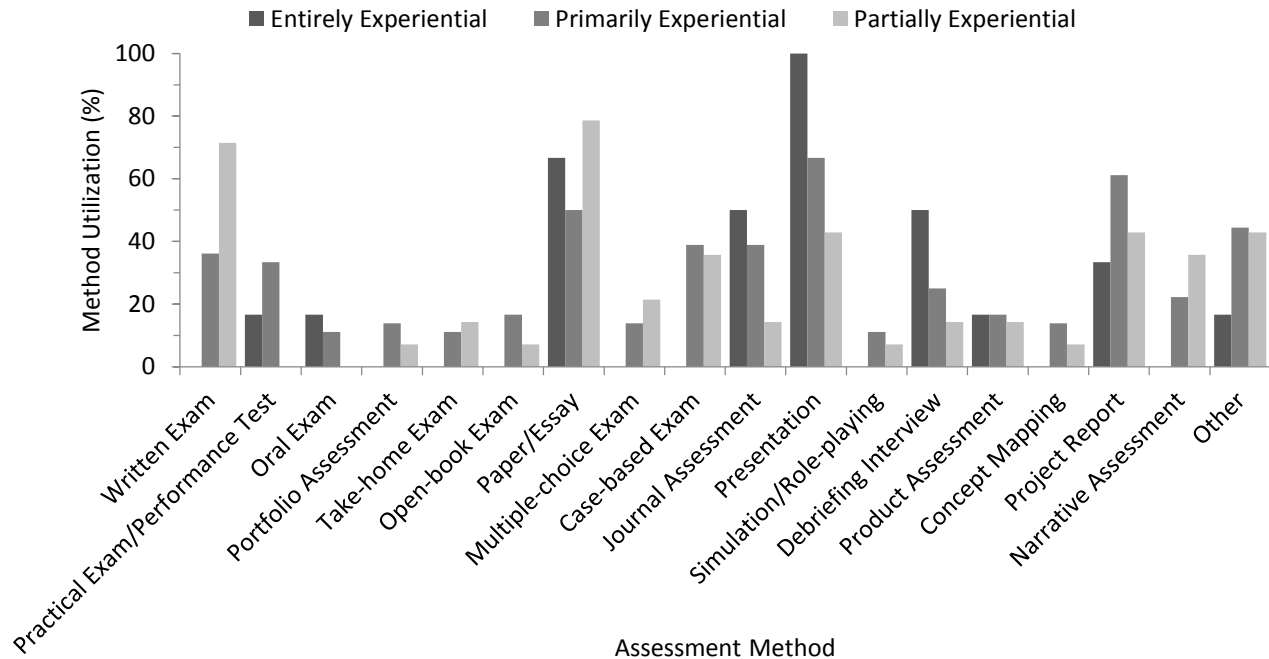


Figure 8. Comparison of assessment methods across course type.

Interactions between Assessment Methods Utilized

Results of MMI tests suggest that the choice of assessment method utilized did not differ based on course type ($\lambda^2 = 41.87, p = 0.1236$). However, choice of assessment methods did differ between experiential and non-experiential course components ($\lambda^2 = 59.68, p < 0.001$). When assessing non-experiential course components, educators were more likely to utilize written examinations ($\lambda^2 = 10.85, p < 0.001$) and less likely to utilize case-based exams ($\lambda^2 = 5.85, p = 0.0155$), practical exams/performance tests ($\lambda^2 = 4.6, p = 0.0312$), and presentations ($\lambda^2 = 4.06, p = 0.0179$) than when assessing experiential course components. Grading methods also differed between traditional and experiential course components ($\lambda^2 = 14.92, p = 0.0295$), with answer keys used more frequently in traditional course components ($\lambda^2 = 6.13, p = 0.0132$). Neither course type ($\lambda^2 = 4.59, p = 0.3192$) nor course component ($\lambda^2 = 3.32, p = 0.109$) influenced whether educators chose to use group or individual exams. Likewise, the use of self-, peer-, and collaborative assessment was independent of both course type ($\lambda^2 = 9.12, p = 0.2961$) and course component ($\lambda^2 = 4.02, p = 0.3687$).

Results of SPMI tests indicate that instructional approach (e.g., field-based, internship) did not influence the assessment methods utilized in fully experiential courses ($\lambda^2 = 29.04, p = 0.5238$), while educators implementing different instructional approaches in partially and primarily experiential courses did utilize different assessment methods ($\lambda^2 = 366.92, p = 0.003$). Written exams were less likely to be used in a number of EL settings, including field projects ($\lambda^2 = 11.26, p < 0.001$), problem-based learning ($\lambda^2 = 6.63, p = 0.0100$), active learning ($\lambda^2 = 8.57, p = 0.0034$), experiential education ($\lambda^2 = 6.52, p = 0.0107$), presentations ($\lambda^2 = 7.68, p = 0.0056$), and group projects ($\lambda^2 = 5.24, p = 0.0221$). In addition, active learning ($\lambda^2 = 4.88, p = 0.0271$), experiential education ($\lambda^2 = 5.33, p = 0.0209$), and presentation ($\lambda^2 = 11.09, p < 0.001$) instructional approaches were more likely to incorporate presentations as a form of assessment.

Instructional approaches described as experiential education were less likely to utilize practical exams/performance tests ($\lambda^2 = 3.95, p = 0.0469$).

Simultaneous pairwise marginal independence tests were also utilized to determine if differences existed between the various assessment methods and grading strategies. The use of various grading tools (i.e., rubric, checklist) was not significantly related to the choice of assessment method ($\lambda^2 = 102.92, p = 0.4797$). However, the decision to utilize group or individual assessment was independent of the assessment method utilized ($\lambda^2 = 60.07, p = 0.0157$). Presentations ($\lambda^2 = 4.05, p = 0.0441$) and narrative assessments ($\lambda^2 = 4.81, p = 0.0283$) were less likely to be used in conjunction with individual exams, while written exams ($\lambda^2 = 7.13, p = 0.0076$) and “other” assessments ($\lambda^2 = 7.13, p = 0.0076$) were more likely to utilize group exams. Assessment methods also differed with respect to their propensity to incorporate self-, peer-, and collaborative-evaluation ($\lambda^2 = 150.3, p < 0.001$), with presentations and narrative assessments more likely to incorporate one of these three evaluation methods; project reports were less likely to use self-assessment ($\lambda^2 = 7.10, p = 0.0072$). In contrast, grading tools were not influenced by assessment type ($\lambda^2 = 102.92, p = 0.4797$). Interestingly, factors that educators indicated as influencing their choice of assessment method(s) (including time, resources, student numbers, student expectations, common practice, consistency, objectivity, and other) were found to be independent of the assessment method utilized ($\lambda^2 = 143.07, p = 0.3727$).

Discussion

Based on the data analysis a number of interesting outcomes related to assessment in experiential courses emerged. Participants could clearly identify with one of the three categories of EL instruction: (a) those whose courses were solely experiential, (b) those whose courses were primarily experiential, and (c) those whose courses were partially experiential. These findings supported the confidence in the participant population that they were able to respond to questions in an informed manner. The lack of response in the fourth category, entirely traditional, was important because it allowed us to confirm that all participants were indeed practitioners of EL as claimed and could speak to the subject based on actual experience.

The responses in each of the three categories of experiential course type shared some similar characteristics. The results within each category would indicate overall that participants used multiple assessment methods within a single course, with instructors utilizing an average of five different methods.

For those who reported that their teaching was entirely experiential, 74% of respondents used multiple EL teaching methodologies in a single course. Although the number of entirely experiential courses was low ($n = 6$), when combined with primarily experiential courses, a significant number have a strong experiential component ($n = 38$). This is evidence to support the idea that rather than simply dabbling, those who use EL are reporting a deep level of commitment to the methodology and connected to that is a recognition that the assessment methods used must be more matched to the method of learning.

For those who worked with courses that were primarily experiential, three definite assessment trends emerged. Most instructors defined their instruction under broad categories such as experiential education, active learning, and internship/practicum; but when it came to the tools they used, this group had the widest range of assessment methods. They supported their assessment with rubrics (77.8%), expert opinion (63.9%), checklist and answer key (41.7% each). The entirely experiential group has eliminated most of the traditional assessment tools.

Only the research paper/essay was still being used. The more commonly reported assessment methods allowed for more student engagement and interaction with the other learners and students in the form of oral examination, presentations, interviews, and journaling. Also of note is that oral examination was used most frequently in course considered entirely experiential couple with a lower usage of project reports compared to other categories. This finding supports the notion that, in addition to innovation in the course delivery, these faculty are also innovative in their assessment methods.

When primarily or partially experiential courses were assessed, instructors utilized different assessment methods for the traditional and experiential course components. When assessing traditional course components, instructors tended to use more traditional assessment methods, such as written examinations, and were less likely to utilize assessments that were more experiential in nature, such as case-based exams, practical exams/performance tests, and presentations. Experiential course components were more likely to utilize these experiential assessment methods, indicating that there is an alignment between teaching methodology and assessment methods. Due to the nature of the more traditional exams used in traditional course components, these assessments were more likely to utilize answer keys in the grading process. Interestingly, neither the use of self-, peer-, or collaborative-assessment, nor the use of group or individual exams, differed between experiential and traditional course components, perhaps suggesting that these assessment strategies have been effectively incorporated into more traditional course components.

No differences were found between the levels of experiential education provided in a course (entirely, primarily, or partially experiential) and the various factors assessed in the survey, including assessment methods, grading strategies, the incorporation of self-, peer-, and collaborative-assessment, and the use of individual and group exams. This suggests that experiential education, regardless of the degree of its incorporation into a course, is qualitatively similar with respect to assessment.

Differing instructional approaches led to the selection of different assessment methods in primarily and partially experiential courses. More generally defined instructional approaches (e.g. problem-based learning, active learning, and experiential education) as well as field projects, presentations, and group projects were less likely to utilize written exams. Active learning, experiential education, and presentation-based courses were more likely to use presentations as assessment methods. Such differences indicate that assessment methods are not applied as a blanket solution to experiential courses, and that experiential courses are qualitatively different in terms of what assessment methods are utilized.

While the various assessment methods under study did not differ in terms of the tools used in grading (i.e., rubric, checklist), they did differ in their incorporation of group versus individual exams as well as the use of self-, peer-, and collaborative assessment. Presentations and narrative assessments were less likely to be used as an individual assessment, and were more likely to incorporate some form of student assessment, indicating that these assessment methods are often viewed by instructors as a cooperative form of evaluation.

Conclusion

Given that the sample size was small, we do not profess to suggest an ideal assessment method for EL. What we do see is the potential for replication of the study on a larger scale or at other institutions to continue to inform the development of EL. The survey does indicate that the

most commonly used forms of assessment in EL courses are journal, case-based exam, project report, and presentation. The most common traditional assessment tool used was paper/essay. Although the results indicate that courses with a primary or partial EL component are less likely to use written examination as an assessment tool and more likely to use experiential based assessment tools such as presentations, what is unknown is what impact the compatibility or lack thereof between teaching method and assessment tool has on student performance and the student experience. Some such matches are logical, such as assessing understanding obtained through participating in a case study with a case-based exam or a practical exam to test the learning of applied field skills. However, is assessment via presentation appropriate for problem-based learning or other forms of experiential education? Understanding the relationship between assessment type and the learning experience would be valuable for scaling up EL assessment to an institutional level.

As the main purpose of this research was to create an informed overview of the EL landscape at our university, we feel we have taken a successful first step by defining and quantifying the use of various EL assessment methods. Our research team felt strongly that surveying faculty was the most effective method of creating an inventory of what is taking place currently. Based on what we have learned we continue to believe this to be true. The data and our findings have the potential to be turned around quickly and shared with those currently engaged in EL and those wishing to move into a more engaged form of teaching and learning. The process also allows us to dig deeper into the world of EL knowing that we have connect with a knowledgeable set of practitioners.

Also, it is important to learn how connected or disconnected faculty who deliver EL are to a variety of traditional and non-traditional forms of assessment. Some traditional assessment methods are nowhere to be found where some, such as the venerable essay, still have a place in the assessment toolbox of those delivering EL. Institutions need to make a concerted effort to promote quality assessment in all teaching and learning situations. Faculty with little or no understanding of EL assessment who are venturing into EL teaching methodologies may not achieve success and their students may not achieve learning outcomes.

The advice we provide to instructors revolves around preparation for change. The biggest adjustment instructors may face is letting go of traditional assessments such as multiple-choice examinations. Time is required to prepare and variety in the evaluation and the instructional processes is common. It will be critical to match the instructional process with the proper or logical assessment tool regardless of the level or mix of EL teaching being used. Incorporating a wide variety of methods of assessment will assist in gathering a range of data and judging the efficacy of instructional methods one uses. As we will share our findings with those who are interested in improving assessment, we do not offer prescriptive advice into teaching strategies outside of identifying what is reportedly taking place, but we do believe there is a strong link between changing both process and evaluation at the same time.

Institutional tracking of all forms of assessment allows for the identification of areas where EL assessment methods may enhance instruction. This initial step is important in advancing major efforts to expand EL teaching and learning. Our research findings support the need to study the connection of teaching methods with compatible assessment methods. In future research, students might be canvassed to determine if they share similar attitudes towards EL assessment methodologies and how effective the main tools for assessment are. In this way, the relationship between learning experience and assessment tool in terms of the best match can be explored for its impact on learning outcomes and the student experience. We plan to use the

results of this research to guide the development of a pilot study for the purpose of testing differences between the most commonly used methods of assessment in terms of student learning and experience.

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Appendix

The Survey

1. Would you describe this course as:

- a) Entirely experiential
- b) Primarily experiential with some traditional components
- c) Primarily traditional with some experiential components
- d) Entirely traditional

If respondents answered “Entirely experiential” to question 1, the following questions were then asked:

- 2. Using up to ten keywords, describe the type(s) of experiential learning employed in your course.
- 3. Which of the choices below best describes the type of experiential learning provided in your course:
 - a) Active learning – students engage the material they study through reading, writing, talking, listening, and reflecting; examples include debates, role-playing, brainstorming, problem-solving, etc.
 - b) Case studies – students take on the role of decision makers through written descriptions of problems or situations
 - c) Cooperative education - students simultaneously attend classes part-time and work part-time during consecutive school terms in an intentionally planned and coordinated way
 - d) Experiential education - students learn from direct experience
 - e) Field-based - supervised student research or practice carried out away from the institution and in direct contact with the people, natural phenomena, or other entities being studied
 - f) Independent study - students pursue an area of interest in their field with faculty guidance
 - g) Internship/practicum - students engage in practical experience in a work setting as well as theoretical study
 - h) Problem-based learning - student work cooperatively in groups to seek solutions to real world problems
 - i) Service learning - students participate in an organized service activity that meets some community need and student reflection increases understanding of course content
 - j) Other, please specify...
- 4. Using up to ten keywords, describe the type(s) of assessment methods utilized in your course.

5. From the following list, select the method(s) of assessment utilized in your course. Check all that apply:
- a) case-based examination
 - b) concept mapping
 - c) debriefing interview
 - d) journal assessment
 - e) multiple-choice examination
 - f) narrative assessment
 - g) open-book examination
 - h) oral exam
 - i) paper/essay
 - j) portfolio assessment
 - k) practical examination/performance test
 - l) presentation
 - m) product assessment
 - n) project report
 - o) simulation/role-playing
 - p) take-home examination
 - q) written examination
 - r) other, please specify...

For each method selected in question 5, the following are asked¹:

6. Please indicate whether the _____ is performed as an individual exercise or in a group:
- a) Individual
 - b) Group
7. Which of the following do you use to determine a grade when using the _____ method?
- c) Answer key
 - d) Checklist
 - e) Expert opinion
 - f) Participation
 - g) Rubric
 - h) Other, please specify...

The survey then continues as follows:

¹ Note that due to the low number of respondents for these questions partitioned by assessment method, all responses were bulked for the MMI and SPMI statistical analysis.

8. Of the assessment methods you have identified, rank them in order of their contribution to the overall student grade, with one representing the highest contribution.
9. Do you provide students with a description of your expectations prior to assessment (ex: distribution of rubrics, advanced organizers, planning guides, or links to example questions)?
 - a) Yes
- I. Briefly describe how you provide students with a description of your expectations.
 - b) No
10. Which of the following assessment strategies do you utilize? Check all that apply:
 - a) Self assessment
 - b) Peer assessment
 - c) Collaborative assessment
 - d) None of the above
11. What factors influence your choice of assessment method(s)? Select all that apply:
 - a) Common practice in your area of teaching
 - b) Consistency
 - c) Objectivity
 - d) Resources
 - e) Student expectations
 - f) Student numbers
 - g) Time
 - h) Other, please specify...

End.

If respondents answered “Primarily experiential with some traditional components” or “Primarily traditional with some experiential components” to question 1, question 3 (above) would be modified to instead list the following choices:

- a. Active learning – students engage the material they study through reading, writing, talking, listening, and reflecting (ex: debates, role-playing, brainstorming, etc.)
- b. Experiential education – students learn from direct experience
- c. Field project – an experience in which students are in direct contact with the people, natural phenomena, or other entities being studied; students complete a project based on their experience in the field setting
- d. Field trip – an experience in which students are in direct contact with the people, natural phenomena, or other entities being studied
- e. Group project
- f. Independent study - a student-initiated experience planned to allow students the opportunity to pursue an area of interest in their field with faculty guidance

- g. Laboratory
- h. Oral interviews
- i. Presentation
- j. Problem-based learning - instructional method that challenges students to "learn to learn," working cooperatively in groups to seek solutions to real world problems
- k. Tutorial
- l. Use of primary source or raw data
- m. Other, please specify...

Participants were then asked "Do you test the experiential learning component(s) of your course separately from the non-experiential learning component(s)?" If respondents answered "No" to this question, they would continue with questions 4 through 11 as outlined above. If respondents answered "Yes" to this question, they would be asked questions 4 through 11 as outlined above for the experiential course component and the traditional course component separately².

If respondents answered "Entirely traditional" to question 1, the survey would end immediately. All willing survey participants were asked to share assessment materials, such as course syllabi.

² For calculation of MMI and SPMI statistics, responses for course components were bulked together for all analysis with the exception of those that explicitly examined differences between traditional and experiential course components.